

**CLAIMS****WHAT IS CLAIMED IS:**

1. A method of controlling a blood pump implanted in a patient, comprising:  
operating the pump at a predetermined speed;  
5 monitoring the patient's diastolic pump flow rate; and  
changing the predetermined speed in response to the diastolic pump flow rate.
2. The method of claim 1, further comprising:  
monitoring the patient's heart rate; and  
changing the predetermined speed in response to at least one of the diastolic pump  
10 flow rate or the heart rate.
3. The method of claim 1, wherein changing the predetermined speed includes  
increasing the pump speed in response to an increase in the diastolic pump flow rate.
4. The method of claim 2, wherein changing the predetermined speed includes  
increasing the pump speed in response to an increase in the heart rate.
- 15 5. The method of claim 1, wherein changing the predetermined speed includes  
decreasing the pump speed in response to a decrease in the diastolic pump flow rate.
6. The method of claim 2, wherein changing the predetermined speed includes  
increasing the pump speed in response to an increase in the diastolic pump flow rate.
7. A pump system, comprising:  
20 a pump; and  
a controller having an input for receiving a blood flow rate signal, the controller  
being programmed to extract a diastolic pump flow rate from the pump  
blood flow rate signal and provide a control signal to the pump to vary the  
speed of the pump in response to the diastolic pump flow rate.
- 25 8. The pump system of claim 7, further comprising an implantable flow  
measurement device having an output for providing the flow rate signal.
9. The pump system of claim 7, wherein the controller is further programmed  
to vary the speed of the pump in response to heart rate changes.

10. The pump system of claim 7, wherein the controller is programmed to increase the speed of the pump in response to an increase in the diastolic pump flow rate.

11. The pump system of claim 7, wherein the controller is programmed to decrease the speed of the pump in response to a decrease in the diastolic pump flow rate.

5 12. The pump system of claim 9, wherein the controller is programmed to increase the speed of the pump in response to an increase in at least one of the diastolic pump flow rate or the heart rate.

13. The pump system of claim 12, wherein the controller is programmed to decrease the speed of the pump in response to a decrease in the diastolic pump flow rate.